and there are plenty of thumb-nail sketches of them. It is interesting to know that Robert Brown, whom Humboldt calls "the glory of Great Britain," was shy and a dead weight at a dinner party, as it explains why he was thought morose. This was not Humboldt's fault, as at a breakfast at Murchison's he "talked without any sort of stop for three hours." Carlyle "is very pleasant to talk to, he is so very natural"; he said Cardinal Newman "has no occiput," and Woolner seems to have found it was more than a metaphor. It is difficult to resist quotation. But the opinion of Sir Francis Galton cannot be omitted, "that truth or falsehood in a nation is merely a question of geography, and that the nations who have not got the article do pretty well without it."

COLLOID CHEMISTRY.

The Chemistry of Colloids and some Technical Applications. By Dr. W. W. Taylor. Pp. viii+328. (London: Edward Arnold, 1915.) Price 7*s*. 6*d*. net.

THIS work can claim to meet a long-felt want with more justice than the majority of publications heralded by that familiar phrase. Until its appearance it has been necessary to refer students to German text-books, many of which are extremely difficult reading for even fair scholars of that language, while most of them devote considerable space to the discussion of theories of the soundness of which the beginner cannot be, and should not be tempted to imagine himself, a judge.

It is one of the merits of the present text-book that by far its larger portion consists of a lucid and concise account of observed facts, the description of which precedes the discussion of theories advanced to explain them everywhere but in the section dealing with adsorption, where the reversal of this order is undoubtedly the only pedagogically sound procedure. The text is divided into four parts: general properties of colloids; methods of preparation; adsorption and applications of colloid chemistry. The subjects indicated by these headings are treated clearly and adequately, the instructions for experimental work being particularly satisfactory—with the exception, perhaps, of ultra-microscopy. This is a point which always presents difficulty, as a knowledge of the principles of high-power microscopy must be presumed which is by no means general. As regards theory, the reviewer has been particularly struck with the very lucid summary of von Weimarn's theory of dispersoid formation, which gives the student all that is essential, while saving him the labour of wrestling with the extraordinarily difficult style of the original.

The chapters on adsorption generally follow Freundlich, but include some recent and important work on the behaviour of sols in contact with other liquid phases. A very necessary warning against identifying phenomena only superficially similar with adsorption, and against using the latter as a facile explanation of obscure processes, is sounded repeatedly. In the concluding section the application of colloidal chemistry to the explanation of various phenomena is illustrated by a number of examples selected at random and including the unavoidable dyeing and tanning. Here, also, the author is careful not to countenance any extravagant claims on behalf of the science, and the student will be left under the correct and stimulating impression that colloidal chemistry can show—in the words of the famous epitaph—"great achievement but still greater promise."

The book is well printed and adequately illustrated, and may be unreservedly recommended to all students desirous of a sound knowledge of what is probably the most widely important, and certainly the most fascinating, branch of physical chemistry.

GEOGRAPHY AS A SCIENCE.

The Teaching of Geography. By B. C. Wallis. Pp. viii+221. (Cambridge: At the University Press, 1915.) Price 3*s*. 6*d*. net.

PERHAPS no school subject, in recent years, has been so much discussed as that of geography. The old meaningless lists of names of places, "famous for" all kinds of curious, as well as important things, has been ruthlessly consigned to the scrap heap. Exactly what is to take its place no one has yet determined, and each expert goes his own way and proclaims his own gospel. Geography—economical, physical, regional, historical, practical—has annexed so many other domains of learning, that the specialists differ within very wide limits, and the non-specialist teachers are overwhelmed by conflicting claims, arguments, and interests.

This book, by Mr. B. C. Wallis, covers most of the questions that interest the practical teacher, and on each and all of them he has much to say that is valuable. He is a teacher himself, that is, a teacher of children; some of the people who theorise upon the subject are only teachers of adults.

Mr. Wallis would have us divide our school schemes of work into three sections—descriptive in the early stages; transitional for the inter-

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mediate stages; systematic and argumentative in the later stages. The descriptive stage includes story-telling, the awakening of the child's imagination and interest, and the introduction of simple map and out-of-door work. In the transition stage, the pupil is chiefly concerned with the investigation of *geographical principles* rather than with the acquisition of geographical facts. In the final stage, the pupil has to collect his own data, to construct his own maps and diagrams, and to reason out his own conclusions, that is, he has to learn the methods and principles of *geographical argument.* Most teachers will agree with these divisions, and be prepared to follow Mr. Wallis in his treatment of the first and second stages; the ideas and methods of the third stage are more debatable, but, from the author's point of view, they are well stated and reasoned.

It is difficult, in a short space, to mention even a fraction of the valuable things the book contains. There are practical exercises for in and out of doors; plans and suggestions for the ideal geography-room and for apparatus; arguments on the relation between geography and history and other subjects, with sensible ideas on correlation; and there are even a few lessons for examiners on how to set examination questions.

Everywhere full details are given in a style attractive, lucid, and often of considerable literary merit. In many places there is geographical information of great value, information such as a teacher cannot always find in the text-books at his disposal.

Full approval may be given to the recommendations to teachers of geography to avoid straying into attractive historical or geological byways, interesting as they may be, for they are not geography, and there is plenty of work to be done without going out of the proper field. It is wise, also, to insist that the geography teacher is not to wait for the science master to explain the working of a barometer before the results of reading the barometer are utilised, nor to waste his own precious time in explaining what falls within the province of another. Sometimes the academic treatment of a subject has to give way to a common-sense one, but it is not every author who writes a book who is willing to state this truth.

We commend the book to all teachers of geography, because it is so eminently sensible, practical, and stimulating. They need not adopt all the conclusions of Mr. Wallis, but they will find it difficult to disprove their truth, or to resist their attractiveness.

MUSICAL FORM AND DEVELOPMENT.

The Musical Faculty: Its Origins and Processes. By W. Wallace. Pp. vi+228. (London: Macmillan and Co., Ltd., 1914.) Price 5*s.* net.

THE systematic and scientific study of the psychological processes involved in the creation and production of music is, from the nature of the case, exceedingly difficult, and the author is fully justified in claiming that there is room for further literature on the subject. How far he has been successful in dealing with these problems in the present book is open to some doubt.

Speaking generally, the first four chapters deal mainly with the development of music pure and simple, the remainder with musicians and their characteristics. Now in treating of individuals, there is no lack of statistical and historical evidence on which to base conclusions. Whether the subject-matter be the existence of musical prodigies, the part played by heredity, the influence on health, both mental and physical, of great musical genius, or such functional characters as mental audition, tonal memory, sense of tempo, power of detecting differences of tone quality, inhibition of sound perception, the data from which inferences may be drawn are of a fairly definite character, and, on the whole, Mr. Wallace's treatment may be regarded as satisfactory. But the present reviewer totally disagrees with what he says about music itself in the chapters entitled "A Readjustment of Values," "Historical Bearings," and "Individual Development."

Mr. Wallace may prefer modern French cacophonies to Haydn's and Mozart's delightful quartets and symphonies, but he surely cannot seriously wish us to believe that those early composers were lacking in originality or individuality simply because they could obtain what they wanted with the use of simple chords and melodies. Neither can we agree with the statement that "Music, as we understand it, has not yet established her eternal verities," and when he states that "it would be no feat for a composer to write another *Orfeo* to-day," we can only say we should like to see anyone try to do it!

Admittedly, both the character of musical form and the recognised standard of excellence are changing, and the changes are the result of a process of evolution similar to that which exists everywhere else. But evolution does not always represent a change to a higher standard of perfection. It sometimes stands for degeneration, and "a readjustment of values" may spell barbarism, as is evidenced in the use of poisonous

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